

REMARKS

Applicants thank the examiner for the courtesy extended to their representative at the interview of February 6, 2001

Claim 1 is canceled.

Claim 10 has been re-written in independent form.

Claims 49 & 55 have been amended. Support for the amendments to claim 55 can be found on p. 4, line 28; p. 5, line 10; and p. 8, line 13.

Claim 56 has been added. Support for this can be found on p. 4, lines 5-9; p. 6, lines 2-6; p. 7, lines 10-25; and p. 8, lines 1-4.

No new matter is added.

Claims 2-12, 33-42, 44, and 46-56 are pending in the application. Examination and reconsideration of the application as amended is respectfully requested.

A. Rejection under 35 U.S.C. § 112

Claims 49-51 and 55 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Applicants have amended Claims 49 and 55. The amendments are believed to alleviate the rejections raised by the examiner. Reconsideration is respectfully requested.

B. Rejection under 35 U.S.C. §103(a)

I. Claims 1-6, 8-12, 33-42, 44, 46, 49, 50, 52 and 55 are rejected under 35 U.S.C. §103(a) as being unpatentable over Cardinal et al, in view of Morman et al, optionally further taken with Bunnelle et al.

Applicants respectfully traverse the rejection.

1. For clarification, HTR-8206 was mentioned in the article by Cardinal et al. See p. II-4 at the end of the first complete paragraph. Applicants' invention is related to a method of forming a continuous film layer as a coating on a substrate. There is a limit to how high the coating temperature can reach before any serious damage is done to the substrate. Applicants choose a temperature of 240 °C to measure the viscosity as it may

be as high a temperature as one wishes the coating temperature to be. Of course, the extrusion temperature can always be higher.

Applicants have now also tested Hytrel 4056 in the same manner as HTR-8206 and the results are submitted in a 132 declaration attached to this response. As shown, Hytrel 4056's viscosity measurement at 240°C is also not in the range recited in Claims 1, 33, 44, 46 and 55. See attached 132 declaration by Robert Polance. All of these demonstrate that the materials recited in Cardinal et al do not have the same properties as recited in the present invention at the coating temperature.

2. Morman et al discloses elastic meltblown fibers formed from a polyetherester polymer to form an elastic non-woven web. See Col. 5, lines 24-33. The fibers are extruded from an extruder having a plurality of orifices as molten strands. See Col. 9, lines 10-36. These fibers combined together to form a web, with gaps and holes, and not a continuous film.

In contrast, Claims 1, 33, 44, 46 and 55 of the present invention are directed to a method of forming a continuous film layer, using thermoplastic polymers having specified complex viscosity ranges at the coating temperature.

First, Cardinal et al discloses Hytrel materials that are not suitable for the present invention, as discussed above. Morman found that these same unsuitable materials form webs, and not continuous films.

Second, viscosity values are sensitive to the conditions under which the measurements are carried out. The viscosity values cited by Morman et al were measured at a temperature of 315°C. See Examples 1-22. This temperature, while suitable for melt blowing fibers, is not a suitable coating temperature onto a substrate. When extruding to form a fiber web, the temperature at extrusion can be done as high as the polymer material can withstand, without regard to the substrate. This is not so for coating a substrate. At the coating temperature, the viscosity values reported by Morman et al are outside of the ranges of the present invention.

Third, Cardinal et al discloses Hytrel materials that are not suitable for the present invention, since the viscosity values are outside the ranges of the present invention, and Morman found that the unsuitable materials can be made into a web by extruding it at a high temperature.

Therefore, there is no teaching or motivation to combine Cardinal et al with Morman to arrive at the present invention, and Applicants respectfully requested that the rejection should be withdrawn.

3. With regard to Bunnelle et al, Examiner states that Figure 2 depicts a hot melt adhesive composition being extruded onto a non-woven web material and that the slot nozzle was spaced from the non-woven. As discussed in the previous response, in col.13, lines 66-69, it states that, "The band 13 comes into contact with chill rolls 15 and 16 almost immediately after the extrusion step, so that the band will be cooled . . .". Thus, Bunnelle teaches a band of adhesive that is cooled by chill rolls prior to contacting the substrate. At the same time, Bunnelle also teaches that the adhesive band can be extruded and directly contacted with the substrate at ambient temperature or at elevated temperature, thus a contact coating method. See col. 11, lines 3-7.

In contrast, the present invention teaches dispensing a continuous film layer of thermoplastic polymers having specified complex viscosity ranges at the coating temperature, from a coating device, with the coating device spaced apart from the path of the substrate.

First, the continuous film layer of the present invention is not cooled by chill rolls prior to contacting the substrate, as the distance between the coating device and the path of the substrate is not large enough to accommodate such chill rolls. The coating device is simply spaced a little apart from the substrate so that there is no immediate contact.

Second, if there is no chilled roll, the process of Bunnelle is a contact coating process and not a non-contact coating process, as in the present invention.

Third, in either of the scenarios above, at the point of contact with the substrate, there is no teaching or motivation to combine the process of Bunnelle with the polymers of Cardinal to arrive at the present invention. Even if, assuming arguendo, that the references can be combined, cooling the polymers of Cardinal et al that are already outside the viscosity ranges of the present invention at 240 °C will not arrive at the present invention. Also, no matter what polymers are used with the contact method of Bunnelle, the combined teaching still fails to teach the present invention. Applicants respectfully request that this rejection should be withdrawn.

In summary, Claims 1, 33, 44, 46 and 55 of the present invention are not obvious, and Applicants respectfully requested that the rejection based on 35 U.S.C. §103(a) as being unpatentable over Cardinal et al, in view of Morman et al, optionally further taken with Bunnelle et al should be withdrawn.

II. Claim 7 is rejected under 35 U.S.C. §103(a) as being unpatentable over references set forth in I and further taken with EP 295,694.

Applicants respectfully traverse the rejection.

E.P. 0 295 694 B1 relates to a waterproof water-vapor permeable laminated structure and application of the same. A melted thermoplastic resin is drawn from an extrusion port of a T-die at a melt viscosity of about 5×10^3 Pa.s or more. (See p. 2, lines 48-54).

In contrast, Claim 7 is dependent from Claim 1, and thus teaches dispensing a continuous film layer of thermoplastic polymers having specified complex viscosity ranges at the coating temperature from a coating device, with the coating device spaced from the path of the substrate. Further, the path of the substrate is in a substantially vertical position after passing the coating device.

First, this reference teaches that if the viscosity of the thermoplastic resin immediately after it is extruded is lower than the range of 10^3 to 10^4 Pa.s, a stable film cannot be formed, and hence a laminated film having uniform resin thickness cannot be obtained. See p. 3, lines 5-9.

Second, it further teaches on p.3, lines 26-29, that "when a thermoplastic resin having a melt viscosity of about 1×10^4 Pa.s (100,000 poise) or less was used, pin holes were increased as the viscosity is reduced".

Third, at a viscosity of about 1×10^4 Pa.s, some holes were locally found even at a thickness of $50\mu\text{m}$ ($\sim 47\text{g}/\text{m}^2$). See p. 3, lines 28-30. This is typical of contact coating methods where much thicker films are coated to prevent pin holes.

Thus, this reference completely teaches away from the present invention of forming a continuous film layer with a thermoplastic polymer having the specified viscosity ranges. Also, there is no teaching or motivation to combine this reference with any other references cited in I. Even if, assuming arguendo, that there is motivation to

combine, this reference is at best cumulative, and combining it with either Cardinal et al, Morman et al, or Bunnelle et al will not teach the present invention. Therefore, Claim 7 of the present invention is not obvious, and the rejection under 35 U.S.C. §103(a) as being unpatentable over references set forth in I and further taken with EP 295,694 should be withdrawn.

III. Claims 47-51, 53 and 54 are rejected under 35 U.S.C. §103(a) as being unpatentable over references set forth in I and further taken with applicant's admitted prior art (and /or the state of the prior art at the time of the invention).

Applicants respectfully traverse the rejection.

First, these claims are dependent from independent Claims 1 and 33, and thus the comments presented above in I with regard to Claims 1 and 33 apply here. First, there is no teaching or motivation to combine the disclosed art with Cardinal et al, Morman et al, and/or Bunnelle et al. As stated above, even if there is, the combined teachings do not arrive at the present invention. Thus, Claims 47-51, 53 and 54 are not obvious.

Applicants respectfully request that the rejection under 35 U.S.C. §103(a) should be withdrawn.

IV. In summary, Applicants have traversed the rejections under 35 U.S.C. §103(a). Applicants respectfully submit that Claims 1-12, 33-42, 44, and 46-55 are in condition for allowance.

C. Conclusion

In view of the above, it is submitted that the application is in condition for allowance. Reconsideration of the rejection is respectfully requested and allowance and passage to issue of Claims 2-12, 33-42, 44, and 46-56 at an early date is solicited.

N. Q.
Nancy N. Quan
Reg. No. 36,248
H.B. FULLER COMPANY
World Headquarters
1200 Willow Lake Blvd.
St. Paul, MN 55110-5101
(651) 236-5620

Date

2/13/01